

Attorney Docket No.: 0150139

**REMARKS**

Prior to the present amendment, claims 1-12, 14-18, and 20-21 were pending in the present application. By the present amendment, claims 1, 10, and 17 have been amended. Thus, claims 1-12, 14-18, and 20-21 remain in the present application. Reconsideration and allowance of pending claims 1-12, 14-18, and 20-21 in view of the above amendments and the following remarks are requested.

**A. Rejection of Claims 1-21 under 35 USC §102(b)**

The Examiner has rejected claims 1-12, 14-18, and 20-21 under 35 USC §102(b) as being anticipated by U.S. patent number 6,452,249 B1 to Maeda et al. (hereinafter "Maeda"). For the reasons discussed below, Applicants respectfully submit that the present invention, as defined by amended independent claims 1, 10, and 17, is patentably distinguishable over Maeda.

The present invention, as defined by amended independent claim 1, recites, among other things, an active shield situated in a silicon substrate, a salicided active region situated in the silicon substrate and situated adjacent to at least one side of and apart from the active shield, where the active shield has a first conductivity type and the salicided active region has a second conductivity type. As disclosed in the present application, in one embodiment, active shield 108, which includes a number of fingers (e.g. fingers 114a through 114g), is formed in well 104, which is formed in substrate 102. As disclosed in the present application, active shield 108 is surrounded by salicided active region 106,

Attorney Docket No.: 0150139

which is formed in well 104. In one embodiment, active shield 108 has P type conductivity while well 104 and salicided active region 106 each have N type conductivity. Salicided active region 106 forms an ohmic contact with well 104. As disclosed in the present application, inductor 252 is formed in an interconnect metal layer in the semiconductor die and is situated over active shield 108. Active shield 108, which is electrically connected to ground in the semiconductor die, provides a clearly defined AC ground for inductor 252 so as to effectively terminate the electric field generated by inductor 252. Also, by connecting salicided active region 106, which surrounds active shield 108, to a voltage source greater than or equal to ground, the "PN" junction formed between active shield 108 and well 104 can be reverse or zero biased, which advantageously minimizes leakage current flowing between active shield 108 and well 104 and shunts to AC ground any RF noise injected into well 104 by inductor 252.

In contrast to the present invention as defined by amended independent claim 1, Maeda does not teach, disclose, or suggest an active shield situated in a silicon substrate, a salicided active region situated in the silicon substrate and situated adjacent to at least one side of and apart from the active shield, where the active shield has a first conductivity type and the salicided active region has a second conductivity type. Maeda specifically discloses PG (perforated ground) shield 101 including a plurality of doped SOI regions 21, where each SOI region 21 includes an overlying silicide film 31. *See*, e.g., Figure 1 and related text of Maeda. In Maeda, the first group of SOI regions, which have a first conductivity type, and the second group of SOI regions, which have a second

Attorney Docket No.: 0150139

conductivity type, are both part of the PG shield. For example, Maeda discloses PG shield 106 including SOI regions 271 to 279, where SOI regions 272 and 276 are N+ regions, SOI regions 274 and 278 are P+ regions, and SOI regions 271, 273, 275, 277, and 279 are N- regions. *See, e.g.,* column 27, lines 22-25 and Figure 20 of Maeda. However, SOI regions 271 to 279 are part of PG shield 106.

In contrast, amended independent claim 1 specifies active shield having a first conductivity type and a salicided active region situated adjacent to at least one side of and apart from the active shield, where the salicided active region has a second conductivity type. Thus, as specified in amended independent claim 1, the active shield, which has a first conductivity type, and the salicided active region, which has a second conductivity type, are two distinct structures. For example, in one embodiment of the present invention, active shield 108 is a P type active shield, and the salicided active region (i.e., salicided active region 106) has N type conductivity and is situated in an N well (i.e., well 104). Thus a “PN” junction is formed between active shield 108 and well 104. By connecting salicided active region 106 to a voltage source greater than or equal to ground and having no AC component, the “PN” junction is reverse or zero biased, which minimizes leakage current flowing between active shield 108 and well 104. Additionally, any RF noise injected into well 104 by inductor 252 will be shunted to AC ground.

Thus, Maeda discloses a structure that is substantially different than the structure as specified in amended independent claim 1. In particular, Maeda fails to teach, disclose, or remotely suggest an active shield situated in a silicon substrate, a salicided

Attorney Docket No.: 0150139

active region situated in the silicon substrate and situated adjacent to at least one side of and apart from the active shield, where the active shield has a first conductivity type and the salicided active region has a second conductivity type, as specified in amended independent claim 1.

For the foregoing reasons, Applicants respectfully submit that the present invention, as defined by amended independent claim 1, is not taught, disclosed, or suggested by Maeda. Thus, amended independent claim 1 is patentably distinguishable over Maeda and, as such, claims 2-9 depending from independent claim 1 are, *a fortiori*, also patentably distinguishable over Maeda for at least the reasons presented above and also for additional limitations contained in each dependent claim.

Amended independent claims 10 and 17 include similar limitations as independent claim 1. Additionally, amended independent claims 10 and 17 specify an active shield and a salicided active region situated in a well in a substrate, where the salicided active region is situated adjacent to at least one side of and apart from the active shield. Maeda discloses well region NW underlying doped regions 121 of PG shield 301. See, for example, Figure 40 and related text of Maeda. However, Maeda fails to teach, disclose, or remotely suggest an active shield situated in a well in a substrate, a salicided active region situated in the well and situated adjacent to at least one side of and apart from the active shield, where the active shield has a first conductivity type and the salicided active region has a second conductivity type, as specified in amended independent claims 10 and 17.

Attorney Docket No.: 0150139

Thus, as discussed above, by forming an active shield surrounded by a salicided active region situated in a well, the present invention advantageously achieves a composite ground shield that clearly defines an AC ground for a passive component, such as an inductor, while providing a reduced capacitance effect on the inductor compared to a conventional ground shield. Furthermore, by integrating a salicided active region with an active shield, the present invention advantageously minimizes leakage current between the active shield and the well in which the active shield is situated while shunting RF noise in the well or substrate to AC ground.

For the foregoing reasons, Applicants respectfully submit that the present invention, as defined by amended independent claims 10 and 17, is not taught, disclosed, or suggested by Maeda. Thus, amended independent claims 10 and 17 are patentably distinguishable over Maeda and, as such, claims 11-12 and 14-16 depending from amended independent claim 10 and claims 18 and 20-21 depending from amended independent claim 17 are, *a fortiori*, also patentably distinguishable over Maeda for at least the reasons presented above and also for additional limitations contained in each dependent claim.

## **B. Conclusion**

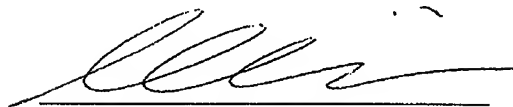
Based on the foregoing reasons, the present invention, as defined by amended independent claims 1, 10, and 17 and claims depending therefrom, is patentably distinguishable over the art cited by the Examiner. Thus, claims 1-12, 14-18, and 20-21

Attorney Docket No.: 0150139

pending in the present application are patentably distinguishable over the art cited by the Examiner. As such, and for all the foregoing reasons, an early allowance of claims 1-12, 14-18, and 20-21 pending in the present application is respectfully requested.

Attorney Docket No.: 0150139

Respectfully Submitted,  
FARJAMI & FARJAMI LLP

Date: 6/22/06

Michael Farjami, Esq.  
Reg. No. 38,135

FARJAMI & FARJAMI LLP  
26522 La Alameda Ave., Suite 360  
Mission Viejo, California 92691  
Telephone: (949) 282-1000  
Facsimile: (949) 282-1002

CERTIFICATE OF FACSIMILE TRANSMISSION

I hereby certify that this correspondence is being filed by facsimile transmission to United States Patent and Trademark Office at facsimile number 571-273-8300 on the date stated below. The facsimile transmission report indicated that the facsimile transmission was successful.

Date of Facsimile: 6/22/06Christina Carter  
Name of Person Performing Facsimile TransmissionChristina Carter 6/22/06  
Signature DateCERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed: Mail Stop RCE, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450

Date of Deposit: \_\_\_\_\_

\_\_\_\_\_  
Name of Person Mailing Paper and/or Fee\_\_\_\_\_  
Signature Date